



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE

United States Patent and Trademark Office

Address: COMMISSIONER FOR PATENTS

P.O. Box 1450

Alexandria, Virginia 22313-1450

www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/561,389	12/19/2005	Tsunechisa Sanagi	DK-US030726	6518
22919 7590 10/13/2009 GLOBAL IP COUNSELORS, LLP 1233 20TH STREET, NW, SUITE 700 WASHINGTON, DC 20036-2680				
EXAMINER				
VERDIER, CHRISTOPHER M				
ART UNIT		PAPER NUMBER		
3745				
MAIL DATE		DELIVERY MODE		
10/13/2009		PAPER		

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

### Office Action Summary

**Application No.**

10/561,389

**Applicant(s)**

SANAGI ET AL.

**Examiner**

Christopher Verdier

**Art Unit**

3745

**Period for Reply** -- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 09 July 2009.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-22 is/are pending in the application.
- 4a) Of the above claim(s) 13 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-12 and 14-22 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 19 December 2005 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/S508)  
Paper No(s)/Mail Date \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_

Applicant's Amendment dated July 9, 2009 has been carefully considered but is non-persuasive. Claims 1-22 are pending.

Concerning the rejection of claims 1-2, 15-16 and 18-19 under 35 U.S.C. 102(b) as being anticipated by Kurusu 5,693,992, Applicant has argued that the Office action states that the first surface of the hollow blade of Kurusu is the core member 24, and that the broadest reasonable interpretation of the term "surface" of the hollow blade is the outer face, outside, or exterior boundary of the hollow blade, and that the core member 24 does not fit the definition of surface of the hollow blade 25. This argument is not persuasive, because surface 24 meets the limitation of the hollow blade having a first surface integrally molded with or fixed to the main plate 21. Concerning Applicant's argument that in figures 6a to 6c of Kurusu, Kurusu teaches mounting the blades 25 to the base plate 21 using the core member 24 and its claws 24 and fails to disclose or to suggest molding or fixing the first surface of the blades 25 to a main plate, this argument is not persuasive because the first surface 24 is clearly shown as molded or fixed to the main plate 21.

Concerning the rejection of claims 1-5, 6, 7-9, 10, 11-12 and 14 under 35 U.S.C. 103(a) as being unpatentable over Gerken 6,508,627 in view of Atarashi 4,971,521, Applicant has argued that claims 1 and 2 recite that the first surface portion of the blades are molded with or fixed to the main plate, and that Gerken teaches away from molding and also teaches away from fixing the first surface portion of blades to the main plate. Applicant has specifically argued that Gerken discloses a blade designed to accept thread cutting or thread forming screws, for

attachment of the blade to a ring-shroud and back-plate, and discloses openings 51 and 55 arranged in the interior of the blades 40 and not on the surface portion to receive screws.

Applicant has further argued that an intended purpose of Gerken is to provide a blade designed to accept thread cutting or thread forming screws, for attachment of the blade to a ring-shroud and back-plate, and that modifying the blade of Gerken for molding would destroy the intended purpose and there is no suggestion or motivation to do so. Applicant has further argued that an intended purpose of Gerken is to provide openings in the interior of the blades 41 to receive screws, and fails to disclose a structure that allows the screws to be attached to a first surface portion of the blade. Applicant has further argued that Gerken teaches away from a first surface portion fixed to the main plate, and that modifying the invention to do so would destroy the intended purpose thereof. Applicant has further argued that if any teaching in the Atarashi and Dorman references point to molding or fixing the first surface portion to the main plate, such a modification would not be proper because Gerken teaches away from molding and fixing the first surface portion to the main plate as stated. These arguments are respectfully disagreed with. Modifying Gerken in the proposed manner would not destroy the intended purpose of Gerken. Modifying Gerken such that each of the hollow blades includes a first surface portion integrally molded with or fixed to the main plate and a second surface portion attached to the first surface portion would result in a molded structure or fixed structure, which eliminates having to tap the blades for set screws, and would be obvious to a person having ordinary skill in the art.

***Election/Restrictions***

Claim 13 is withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to a nonelected species, there being no allowable generic or linking claim. Election was made **without** traverse in the reply filed on March 25, 2009.

***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-2, 15-16 and 18-19 are rejected under 35 U.S.C. 102(b) as being anticipated by Kurusu et al. (U.S. Patent 5,693,992).

Kurusu et al. disclose an impeller of a centrifugal fan comprising:

a main plate (fig 8, 21) configured to rotate around a rotating shaft;

a plurality of hollow blades (25 and 24 connect to leave a hollow space) annularly disposed around the rotating shaft, each of the hollow blades including a first surface (24) portion integrally molded with or fixed to the main plate (21) and a second surface (25) portion attached to the first surface portion, the first and second surface portions forming a hollow space; and

a side plate (38) integrally molded with or fixed to the first surface portions,

the hollow blades being disposed between the main plate and the side plate,

the main plate, the hollow blades and the side plate being configured to take in gas from a rotating shaft direction and blow out the gas in a direction intersecting the rotating shaft, and each of the second surface portions (25) forming at least a part of a negative pressure surface.

Regarding claim 2, Kurusu et al. disclose an impeller of a centrifugal fan comprising:  
a main plate (fig 8, 21) configured to rotate around a rotating shaft;  
a plurality of hollow blades (25 and 24 connect to leave a hollow space) annularly disposed around the rotating shaft, each of the hollow blades including a first surface (24) portion integrally molded with or fixed to the main plate (21) and a second surface portion (25) attached to the first surface portion, the first and second surface portions forming a hollow space;  
and

a side plate (38) integrally molded with or fixed to the first surface portions,  
the hollow blades being disposed between the main plate and the side plate (fig 8),  
the main plate, the hollow blades and the side plate being configured to take in gas from a rotating shaft direction and blow out the gas in a direction intersecting the rotating shaft, and  
the second surface portions being configured to remain attached to the first surface portions while centrifugal force resulting from the rotation of the main plate act thereon (24 hooks into 25).

Regarding claims 15 and 18, Kurusu et al. disclose the first surface portions are separately molded (the two surfaces are made separately and then connected together when hooks 24 lock into blades 25).

Regarding claims 16 and 19, Kurusu et al. disclose that the fan could be welded (col. 2 lines 9-15), but is silent as to the type of welding. The claimed phrase “by laser welding” is being treated as a product by process limitation; that is, that the fan is made by laser welding. As set forth in MPEP 2113, product by process claims are NOT limited to the manipulations of the recited steps, only to the structure implied by the steps. Once a product appearing to be substantially the same or similar is found, a 35 USC 102/103 rejection may be made and the burden is shifted to applicant to show an unobvious difference. See MPEP 2113.

Thus, even though Kurusu et al. is silent as to the process used to make the fan, it appears that the product in Kurusu et al. would be the same or similar as that claimed; especially since both applicant’s product and the modified prior art product can be welded.

### *Claim Rejections - 35 USC § 103*

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-5, 7-9, 11-12, 14, and 21-22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Gerken et al. (U.S. Patent 6,508,627) in view of Atarashi et al. (U.S. Patent 4,971,521).

Gerken et al. discloses an impeller of a centrifugal fan comprising:

a main plate (fig 2, 13) configured to rotate around a rotating shaft;

a plurality of hollow blades (11) annularly disposed around the rotating shaft; and

a side plate (15) integrally molded with or fixed to the first surface portions, the hollow blades being disposed between the main plate and the side plate (fig 2), the main plate, the hollow blades and the side plate being configured to take in gas from a rotating shaft direction and blow out the gas in a direction intersecting the rotating shaft.

Gerken et al. does not teach that each of the hollow blades including a first surface portion integrally molded with or fixed to the main plate and a second surface portion attached to the first surface portion, the first and second surface portions forming a hollow space and each of the second surface portions (25) forming at least a part of a negative pressure surface

However, Atarashi et al. teaches of a blade made up of two surface portions fixed or molded to the main plate for the purpose of removing the disadvantages such as tapping the blades for set screws (col. 1-2 lines 63-2 and col. 2 lines 11-16).

Since Gerken et al. and Atarashi et al. are both from the impeller art, the purpose disclosed by Atarashi et al. would have been recognized in the pertinent art of Gerken et al. It would have been obvious at the time the invention was made to one having ordinary skill in the art to use the two surface hollow airfoils of Atarashi et al. in the invention of Gerken et al. for the purpose of removing the need to tap the blades for set screws (col. 1-2 lines 63-2 and col. 2 lines 11-16).

Regarding claim 2, the modified apparatus of Gerken discloses all of the claimed limitations as discussed in claim 1 above and the first and second surface portions are designed to remain attached (they are typically connected by welding, Gerken, col. 2 lines 48-52).



Regarding claim 3, the modified apparatus of Gerken discloses all of the claimed limitations as discussed in claim 1 above and discloses inserting a portion of the second surface into the first surface (the leading edge of 3 is inserted into 1 at 4).

Regarding claim 4, the modified apparatus of Gerken discloses all of the claimed limitations as discussed in claim 1 above and the first surface portion and the second surface portion are separately molded (the blade is attached to the first surface, Gerken, col. 2, lines 48-52).

Regarding claims 5 and 9, the modified apparatus of Gerken teaches that the fan could be welded (col. 2 lines 48-52), but is silent as to the type of welding. The claimed phrase “by laser welding” is being treated as a product by process limitation; that is, that the fan is made by laser welding. As set forth in MPEP 2113, product by process claims are NOT limited to the manipulations of the recited steps, only to the structure implied by the steps. Once a product appearing to be substantially the same or similar is found, a 35 USC 102/103 rejection may be made and the burden is shifted to applicant to show an unobvious difference. See MPEP 2113.

Thus, even though the modified apparatus of Gerken is silent as to the process used to make the fan, it appears that the product in Gerken would be the same or similar as that claimed; especially since both applicant’s product and the modified prior art product can be welded.

Regarding claim 7, the modified apparatus of Gerken discloses all of the claimed limitations as discussed in claim 1 above and a side plate guide mechanism for positioning the blades (a screw can be used to temporarily hold the blade).

Regarding claim 8, the modified apparatus of Gerken discloses all of the claimed limitations as discussed in claim 4 above.

Regarding claim 11, the modified apparatus of Gerken discloses all of the claimed limitations as discussed in claim 7 above.

Regarding claim 12, the modified apparatus of Gerken discloses all of the claimed limitations as discussed in claim 1 above and a blade shape retaining mechanism (ribs 2).

Regarding claim 14, the modified apparatus of Gerken discloses all of the claimed limitations as discussed in claim 1 above and a drive mechanism to rotate the plate (Gerken discloses a centrifugal fan in the abstract).

Regarding claims 21 and 22, the first surface portion forms part of a positive pressure surface.

Claims 6 and 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Gerken et al. (U.S. Patent 6,508,627) in view of Atarashi et al. (U.S. Patent 4,971,521).

The modified apparatus of Gerken discloses all of the claimed limitations as discussed in the rejection of claim 1 above, but does not disclose a higher light transmittance of the first surface portions.

Gerken in view of Atarashi as modified in the rejection of claim 1 above, teach of using weldable materials as claimed. It is common practice in the art to change the light transmittance (color) of separate parts in order to better differentiate between parts during assembly. Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the light transmittance of the modified apparatus of Gerken as an **engineering expedient**.

Claims 17 and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kurusu et al.

Kurusu et al. disclose all of the claimed limitations as discussed in the rejection of claim 16 and 19 above, but does not disclose a higher light transmittance of the first surface portions.

Claims 17 and 20 are rejected under 35 USC 103(a) as unpatentable over Kurusu et al. Kurusu et al. teach of using weldable materials as claimed (col. 2 lines 9-14). It is common practice in the art to change the light transmittance (color) of separate parts in order to better differentiate between parts during assembly. Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the light transmittance of the parts of Kurusu et al. as an **engineering expedient**.

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event,

Art Unit: 3745

however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Christopher Verdier whose telephone number is (571) 272-4824. The examiner can normally be reached on Monday-Friday from 10:00-6:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Edward K. Look can be reached on (571) 272-4820. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Christopher Verdier/  
Primary Examiner, Art Unit 3745

Christopher Verdier  
Primary Examiner  
Art Unit 3745